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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/682,578	10/09/2003	David J. Knapp	PD-02W168	8491

7590 02/24/2005

Patent Docket Administration
RAYTHEON COMPANY
Bldg. EO/E4/N119
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El Segundo, CA 90245

EXAMINER

KO, TONY

ART UNIT PAPER NUMBER

2878

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/682,578

Applicant(s)

KNAPP ET AL.

Examiner

Tony Ko

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/09/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 13-21, and 30-33 are rejected under 35 U.S.C. 102(b) as being anticipated by McKenney (U.S. Patent 6,028,712).
3. Regarding claim 1-4, 13-21, and 30-33, McKenney discloses (See Fig. 2) a system for sensing light transmitted with reduced optical aberrations into the interior of an enclosure, comprising: a window (24) disposed on the exterior surface of the enclosure for allowing light to pass into the enclosure; a lens (32) disposed on the interior said of said window (24), defining a cavity (thin strip between 32 and 24) between said window and said lens; a fluid disposed within said cavity, and an optical sensor (46) disposed in the interior of the enclosure and positioned to receive light through said window and said lens. McKenney also discloses the exterior surface said window is formed to a shape other than a flat plate or a spherical dome (Fig. 2); McKenney also discloses the exterior surface of said window is shaped to conform to the exterior surface of said enclosure (Fig. 2); McKenney also discloses the exterior surface of said window is formed to conform to a rotated conic section selected from one of an ellipse, a parabola, or a hyperbola, or is formed as a rotated ogive; McKenney also discloses a corrector element (32) formed to offset optical aberrations caused by

said window and said fluid. (Col. 5, Lines 10-15); McKenney also discloses the lens is comprised of a single optical element (Fig. 2); McKenney also discloses the sensor is gimbal (52) mounted to vary the look angle of said sensor; McKenney also discloses the lens is formed to correct optical aberrations created by the combination of said window and said fluid, such that light is coupled to said optical sensor in a diffraction limited condition (Claim 1).

4. Claims 1-4, 13-21, and 30-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Manhart (U.S. Patent 6,313,951)

5. Regarding claim 1-4, 13-21, and 30-33, Manhart discloses (See Fig. 2) a system for sensing light transmitted with reduced optical aberrations into the interior of an enclosure, comprising: a window (24) disposed on the exterior surface of the enclosure for allowing light to pass into the enclosure; a lens (32) disposed on the interior said of said window (24), defining a cavity (thin strip between 32 and 24) between said window and said lens; a fluid disposed within said cavity, and an optical sensor (46) disposed in the interior of the enclosure and positioned to receive light through said window and said lens. Manhart also discloses the exterior surface said window is formed to a shape other than a flat plate or a spherical dome (Fig. 2); McKenney also discloses the exterior surface of said window is shaped to conform to the exterior surface of said enclosure (Fig. 2); Manhart also discloses the exterior surface of said window is formed to conform to a rotated conic section selected from one of an ellipse, a parabola, or a hyperbola, or is formed as a rotated ogive; Manhart also discloses a corrector element (32) formed to offset optical aberrations caused by said window and said fluid; Manhart also discloses

the lens is comprised of a single optical element (Fig. 2); McKenney also discloses the sensor is gimbal (52) mounted to vary the look angle of said sensor; McKenney also discloses the lens is formed to correct optical aberrations created by the combination of said window and said fluid, such that light is coupled to said optical sensor in a diffraction limited condition.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5-12 and 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKenney (U.S. Patent 6,028,712).

8. Regarding claims 5, 6, 22 and 23, McKenney discloses the invention set forth above. McKenney does not disclose the fluid is selected having an index of refraction that minimizes the mismatch with the index of refraction of said window. It is well known in the art to match the index of refraction of the fluid and the window. It would have been obvious to a person of ordinary skill in the art at the time of the invention to minimize the mismatch with the index of refraction of the window and the fluid to reduce the attenuation of the incident light.

9. Regarding claims 7, 8, 24 and 25, McKenney discloses the invention set forth above, McKenney also discloses the optical system is part of a missile (Col. 6, Lines 51-56). McKenney does not disclose the fluid is water. It is design choice to use water. It

would have been obvious to a person of ordinary skill in the art at the time of the invention to use water as the fluid for the missile to be operated in the water to reduce the attenuation of the incident light.

10. Regarding claims 9 and 26, McKenney discloses the invention set forth above; McKenney does not disclose the fluid is a gel. It is design choice to use gel as the fluid. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use gel as the fluid to establish the desired index of refraction.

11. Regarding claims 10 and 27, McKenney discloses the invention set forth above; McKenney does not disclose the system operates in a fluid environment and said fluid has an index of refraction similar to the index of refraction of said fluid environment. It is well known in the art to operate the system in a fluid environment and said fluid has an index of refraction similar to the index of refraction of said fluid environment. It would have been obvious to a person of ordinary skill in the art at the time of the invention to in a fluid environment and said fluid has an index of refraction similar to the index of refraction of said fluid environment to reduce the attenuation of the incident light.

12. Regarding claims 11 and 28, McKenney discloses the invention set forth above; McKenney does not disclose the fluid environment is selected from one of a bodily fluid, a hydrocarbon, a lubricant, or and industrial chemical. It is design choice to use one of a bodily fluid, a hydrocarbon, a lubricant, or and industrial chemical as the fluid. It would have been obvious to a person of ordinary skill in the art at the time of the invention to one of a bodily fluid, a hydrocarbon, a lubricant, or and industrial chemical to establish the desired index of refraction to reduce the attenuation of the incident light.

Regarding claims 12 and 29, McKenney discloses the invention set forth above; McKenney does not disclose the system is a torpedo. It is design choice to implement the system into a torpedo. It would have been obvious to a person of ordinary skill in the art at the time of the invention to implement the system into a torpedo to attack foreign object.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Ko whose telephone number is 571-272-1926. The examiner can normally be reached on Monday-Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TKO


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